

Amendments to the Claims:

1 – 19 (cancelled)

20. (currently amended) A method for producing a hole in a superalloy metal turbine component by pulsed laser beams, wherein the hole comprises a first region comprising sloped walls, and a second region, the method comprising:

using only a shorter laser pulse length to produce at least a portion of the sloped walls in a first process step for producing a first region of the hole in the superalloy metal turbine component; and

using only a longer laser pulse length to produce any remaining portion of the first region and to produce the second region in a second process step for producing a second region of the hole in the superalloy metal turbine component.

21. (previously presented) The method as claimed in claim 20, wherein the first region of the hole is an outer region of the hole and the second region of the hole is an inner region of the hole.

22. (currently amended) A method for producing a hole in a component by pulsed laser beams, wherein the hole comprises a first region comprising sloped walls, and a second region, the method comprising:

generating a plurality of laser beams with different laser pulse lengths;

using only a shorter laser pulse length in a first process step for producing at least a portion of the sloped walls the hole in the component;

using only a longer laser pulse length in a second process step for producing any remaining portion of the first region and the second region the hole in the component;

diverting the laser beams onto the component via a plurality of mirrors, the mirrors physically separated from each other such that only one laser beam is directed onto the component at a time;

guiding the laser beams onto the component via an optical system.

23. (previously presented) The method as claimed in claim 22, wherein the laser pulse lengths are continuously increased as a formation of the hole from an outer surface of the component into a depth of the hole.

24. (previously presented) The method as claimed in claim 22, wherein in the first process step the laser pulse length of less than 100 ns is used and in the second process step the laser pulse length of greater than or equal to 50 ns and less than 10 ms is used.

25. (previously presented) The method as claimed in claim 24, wherein in the first process step the laser pulse length of less than 50 ns is used and in the second process step the laser pulse length of greater than or equal to 100 ns and less than 10 ms is used.

26. (previously presented) The method as claimed in claim 22, wherein the component has a layer system which comprises a substrate and a ceramic or metallic layer.

27. (currently amended) The method as claimed in claim ~~22~~26, wherein the metallic layer has a composition of MCrAlX,
wherein M is an element selected from the group consisting of iron, cobalt and nickel,
and
X is yttrium and/or a rare earth element.

28. (currently amended) The method as claimed in claim ~~22~~26, wherein the substrate is a nickel-base, cobalt-base or iron-base superalloy.

29. (previously presented) The method as claimed in claim 22, wherein the component is a turbine component of a gas turbine or steam turbine selected from the group consisting of: a turbine blade, a turbine vane, and a combustion chamber lining.

30. (previously presented) The method as claimed in claim 22, wherein an outer upper region of the hole is produced first using the shorter laser pulse length in the first process step and a remaining region of the hole is produced using the longer laser pulse length in the second process step.

31. (currently amended) A method for producing a hole in a component by pulsed laser beams, wherein the hole comprises a first region comprising sloped walls, and a second region, the method comprising:

generating a plurality of laser beams with different laser pulse lengths;

using only a shorter laser pulse length for producing at least a portion of the sloped walls ~~a first region~~ of the hole;

using a only longer laser pulse length for producing any remaining portion of the first region and a second region of the hole;

diverting the laser beams onto the component via a plurality of mirrors;

simultaneously guiding the laser beams onto the component via an optical system.

32. (previously presented) The method as claimed in claim 31, wherein the first region of the hole is an outer region of the hole and the second region of the hole is an inner region of the hole.

33. (previously presented) The method as claimed in claim 31, wherein the laser pulse lengths are continuously increased as a formation of the hole from an outer surface of the component into a depth of the hole.

34. (previously presented) The method as claimed in claim 31, wherein the laser pulse length of less than 100 ns is used for producing the first region of the hole and the laser pulse length of greater than or equal to 50 ns and less than 10 ms is used for producing the second region of the hole.

35. (previously presented) The method as claimed in claim 34, wherein the laser pulse length of less than 50 ns is used for producing the first region of the hole and the laser pulse length of greater than or equal to 100 ns and less than 10 ms is used for producing the second region of the hole.

36. (previously presented) The method as claimed in claim 31, wherein the component has a layer system which comprises a substrate and a ceramic or metallic layer.

37. (currently amended) The method as claimed in claim ~~34~~36, wherein the metallic layer has a composition of MCrAlX,
wherein M is an element selected from the group consisting of iron, cobalt and nickel,
and
X is yttrium and/or a rare earth element.

38. (currently amended) The method as claimed in claim ~~34~~36, wherein the substrate is a nickel-base, cobalt-base or iron-base superalloy.

39. (previously presented) The method as claimed in claim 31, wherein the component is a turbine component of a gas turbine or steam turbine selected from the group consisting of: a turbine blade, a turbine vane, and a combustion chamber lining.